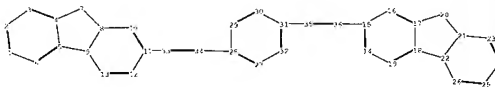
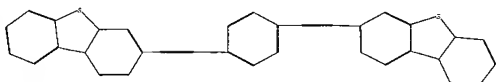


C:\STNEXP4\QUERIES\067871.str



```

chain nodes :
  33 34 35 36
ring nodes :
  1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
  26 27 28 29 30 31 32
chain bonds :
  11-33 15-36 28-34 31-35 33-34 35-36
ring bonds :
  1-2 1-6 2-3 3-4 4-5 4-7 5-6 5-9 7-8 8-9 8-10 9-13 10-11 11-12 12-13 14-15
  14-19 15-16 16-17 17-18 17-20 18-19 18-22 20-21 21-22 21-23 22-26 23-24 24-25
  25-26 27-28 27-32 28-29 29-30 30-31 31-32
exact/norm bonds :
  4-7 5-9 7-8 8-9 8-10 9-13 10-11 11-12 12-13 17-20 18-22 20-21 21-22 21-23
  22-26 23-24 24-25 25-26
exact bonds :
  11-33 15-36 28-34 31-35 33-34 35-36
normalized bonds :
  1-2 1-6 2-3 3-4 4-5 5-6 14-15 14-19 15-16 16-17 17-18 18-19 27-28 27-32
  28-29 29-30 30-31 31-32

Match level :
  1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:Atom 8:Atom 9:Atom 10:Atom 11:Atom
  12:Atom 13:Atom 14:Atom 15:Atom 16:Atom 17:Atom 18:Atom 19:Atom 20:Atom 21:Atom
  22:Atom 23:Atom 24:Atom 25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:Atom 31:Atom
  32:Atom 33:CLASS 34:CLASS 35:CLASS 36:CLASS

```

AN 2002:214480 CAPLUS
DN 136:377729
TI Novel high birefringence dibenzothiophenylacetylene liquid crystals
AU Sekine, Chizu; Ishitobi, Masamitsu; Iwakura, Kazunori; Minai, Masayoshi;
Fujisawa, Koichi
CS Tsukuba Research Laboratory, Sumitomo Chemical Co. Ltd., Tsukuba,
300-3294, Japan
SO Liquid Crystals (2002), 29(3), 355-367
CODEN: LICRE6; ISSN: 0267-8292
PB Taylor & Francis Ltd.
DT Journal
LA English
CC 75-11 (Crystallography and Liquid Crystals)
Section cross-reference(s): 27, 73, 74
AB The authors have designed, synthesized and evaluated
dibenzothiophenylacetylene homologs as new heterocyclic mols. which were
expected to have high .DELTA..alpha. values and short wavelength UV
absorption spectra. The dibenzothiophenyl acetylene homologs exhibited
wide nematic phase ranges and had very high extrapolated .DELTA.n of over
0.6 and directly measured values of 0.5. The compds. with two
dibenzothiophenyl rings were colorless, so that the authors have succeeded
in obtaining colorless super-high .DELTA.n liq. crystals. The authors
also analyzed the contribution of the transition band to the refractive
indexes and the birefringence. From the anal., the main origins of
.DELTA.n for compds. 1 and 2 are lower MOs than the HOMO and this results
in the compatibility of large .DELTA.n and lack of color. The
dibenzothiophenylacetylene compds. behaved according to the authors'
design expectations.
ST birefringence dibenzothiophenylacetylene deriv liq crystal prepn property
IT Liquid crystals
(design, synthesis, and mesomorphic and optical properties of
high-birefringence dibenzothiophenylacetylene derivs.)
IT Birefringence
UV and visible spectra
(of dibenzothiophenylacetylene deriv. liq. crystals)
IT Polarizability
Refractive index
(of high-birefringence dibenzothiophenylacetylene derivs.)
IT Liquid crystals
(transitions; of high-birefringence dibenzothiophenylacetylene derivs.)
IT 425404-03-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and (hexylidene)dibenzothiophenylacetylene)
IT 25288-76-0P, 3-Dibenzothiophenamine
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and bromination of)
IT 425404-07-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and desilylation of)
IT 425404-00-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and esterification of)
IT 1013-23-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and nitric acid reaction with)
IT 425403-99-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. and oxidn. of)

IT 425403-94-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction dibenzothiophenylacetylene(ethylphenyl trifluorosulfonate))

IT 425403-93-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction potassium hydroxide in toluene)

IT 425403-96-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with dibenzothiophenylacetylene and pentyloxyphenylacetylene)

IT 425404-04-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with hexyne and phenyldioxoborane)

IT 425403-97-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with nitric acid)

IT 425404-08-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with pentyloxydibenzothiophenylacetylene(ethylphenyl trifluorosulfonate))

IT 97511-04-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with propargyl alc. in presence of palladium dichloride, triphenylphosphine and triethylamine in Et acetate)

IT 425404-01-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with triethylamine and toluenesulfonic acid in methanol)

IT 425403-95-8P 425404-02-0P 425404-05-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with trifluoromethanesulfonic anhydride)

IT 425404-06-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and reaction with trimethylsilylacetylene)

IT 68925-98-4P 425403-98-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. and redn. of)

IT 425403-90-3P 425403-91-4P 425403-92-5P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(prepn., liq. crystal properties and optical properties of)

IT 67589-39-3, 4-Ethoxyphenyl trans-4-propylcyclohexylcarboxylate
67589-41-7, 4-Butoxyphenyl trans-4-propylcyclohexylcarboxylate
67589-47-3, 4-Ethoxyphenyl trans-4-butylcyclohexylcarboxylate
67589-52-0, 4-Methoxyphenyl trans-4-pentylcyclohexylcarboxylate
67589-53-1, 4-Ethoxyphenyl trans-4-pentylcyclohexylcarboxylate
RL: NUU (Other use, unclassified); PRP (Properties); USES (Uses)
(refractive indexes and dichroic ratios of polarized UV spectra of dibenzothiophenylacetylene derivs. in liq. crystal mixt. contg.)

RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Anon; Handbook of Liquid Crystals 1998, V2A, P129
- (2) Bowley, C; Mol Cryst liq Cryst 1999, V331, P209
- (3) Doane, J; Appl Phys Lett 1986, V48, P269 CAPLUS
- (4) Ferguson, J; SID '86 Dig 1986, P68
- (5) Fontana, M; Phys Rev A 1986, V33, P4132 CAPLUS
- (6) Goto, Y; Mol Cryst liq Cryst 1995, V260, P23 CAPLUS
- (7) Kawauchi, S; Nonlinear Optics 2000, V26, P91
- (8) Li, J; SID '96 Dig 1996, P265
- (9) Mcmanamon, P; Opt Eng 1993, V32, P2657 CAPLUS
- (10) Seed, A; J mater Chem 2000, V10, P2069 CAPLUS
- (11) Sekine, C; JP 98-43289 1998
- (12) Sekine, C; Liq Cryst 2001, V28, P1361 CAPLUS
- (13) Sekine, C; Mol Cryst liq Cryst 1999, V332, P235
- (14) Sekine, C; Mol Cryst liq Cryst (in the press)
- (15) Sutherland, R; Chem Mater 1993, V5, P1533 CAPLUS
- (16) Takatsu, H; Mol Cryst liq Cryst 1986, V141, P279 CAPLUS
- (17) Tanaka, T; Mol Cryst liq Cryst 2000, V346, P209 CAPLUS
- (18) Tokumaru, T; Proceedings of Anglo-Japanese Seminar on Liquid Crystals 1999, P72
- (19) Vuks, M; Opt Spektrosk 1996, V20, P644
- (20) Wu, S; J appl Phys 1989, V65, P4372 CAPLUS
- (21) Wu, S; J appl Phys 1991, V69, P2080 CAPLUS
- (22) Wu, S; Phys Rev A 1986, V33, P1270 CAPLUS
- (23) Wu, S; SID 2001 Dig 2001, P954 CAPLUS
- (24) Wu, S; SID Tech Dig 1985, V16, P262

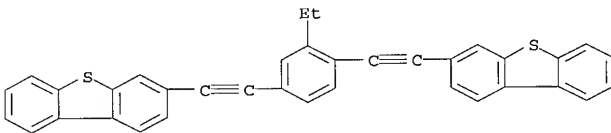
IT 425403-90-3P 425403-92-5P

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)

(prepn., liq. crystal properties and optical properties of)

RN 425403-90-3 CAPLUS

CN Dibenzo[thiophene, 3,3'-[(2-ethyl-1,4-phenylene)di-2,1-ethynediyl]bis-(9CI) (CA INDEX NAME)

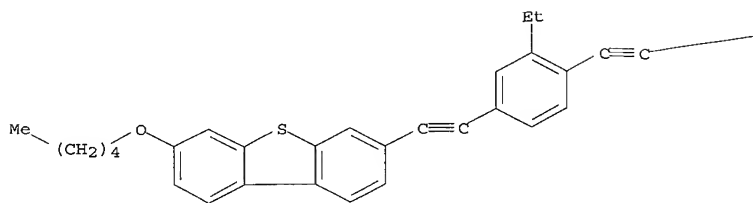


RN 425403-92-5 CAPLUS

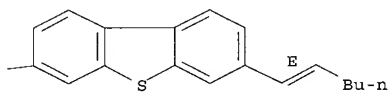
CN Dibenzo[thiophene, 3-[[3-ethyl-4-[[7-(1E)-1-hexenyl-3-dibenzo[thienyl]ethynyl]phenyl]ethynyl]-7-(pentyloxy)- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



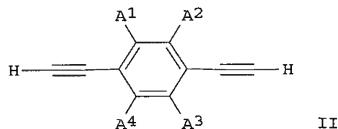
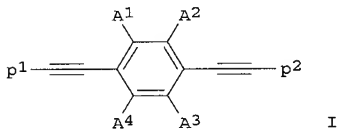
PAGE 1-B



AN 2002:616226 CAPLUS
 DN 137:177210
 TI Compound having phenylacetylene structure, liquid crystal composition,
 polymer, optically anisotropic product, optical or liquid crystal element,
 dibenzothiophene compound, intermediate, and process for producing the
 same
 IN Sekine, Chizu; Ishitobi, Masamitsu; Fujisawa, Koichi; Iwakura, Kazunori;
 Minai, Masayoshi
 PA Japan
 SO U.S. Pat. Appl. Publ., 74 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM C09K019-52
 ICS C09K019-30; C07C025-13; C07D495-00; C07D335-10
 NCL 428001100
 CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other
 Reprographic Processes)
 Section cross-reference(s): 75
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002110650	A1	20020815	US 2002-67871	20020208
	JP 2002255960	A2	20020911	JP 2001-52954	20010227
	JP 2002322174	A2	20021108	JP 2002-24353	20020131
	JP 2002322215	A2	20021108	JP 2002-24425	20020131
	GB 2380192	A1	20030402	GB 2002-2907	20020207
	DE 10205367	A1	20021212	DE 2002-10205367	20020208
PRAI	JP 2001-33782	A	20010209		
	JP 2001-37311	A	20010214		
	JP 2001-52954	A	20010227		
OS	MARPAT 137:177210				

GI



AB The present invention relates to liq. crystal compns., polymers, optically
 anisotropic products, and optical or liq. crystal elements that have large
 refractive index anisotropy, mix easily with other liq. crystals, have
 advantageous stability against light, and exhibit absorption at
 practically short wavelength in the UV region. The present invention also
 relates to phenylacetylene structure compds. which are useful as optical
 display, and recording materials, as optical compensators, polarizer
 materials, reflector plates, etc., all for liq. crystal display devices.
 The compds. are represented by I (A1-4 = H, F, C1-10 alkyl or alkoxy

optionally substituted with F; P1,2 = structure fulfilling the conditions of HOMO energy and polarizability) and have a phenylacetylene structure, wherein difference .DELTA.E in energy of HOMO of parts II, P1-H and P2-H calcd. by the method of MOs is .gtoreq. 0.3 eV, and the polarizability anisotropy .DELTA..alpha. of a mol. represented by I calcd. in the same way is .gtoreq. 500 A.U.

ST liq crystal display phenylacetylene dibenzothiophene compd

IT Liquid crystal displays
(Compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal compn. for)

IT 425403-90-3P 425403-91-4P 446023-58-1P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 379268-41-4P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 224648-09-3 239104-43-9 239104-50-8 251467-52-4 296255-72-6
299411-32-8 299411-39-5 446023-47-8 446023-48-9
RL: TEM (Technical or engineered material use); USES (Uses)
(liq. crystal compn.; compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 425403-94-7P 425403-96-9P 425404-00-8P 425404-01-9P 425404-03-1P
446023-43-4P 446023-45-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 446023-46-7P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(prepn. of compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

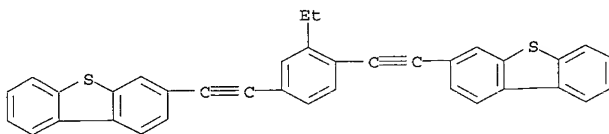
IT 110-87-2, Dihydropyran 115-19-5, 2-Methyl-3-butyne-2-ol 132-65-0,
Dibenzothiophene 274-07-7, Catecholborane 628-17-1, 1-Iodopentane 693-02-7, 1-Hexyne 814-68-6, Acrylic acid chloride 4286-55-9
50816-19-8, 8-Bromo-octanol 79887-16-4 350036-14-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(prepn. of compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 1013-23-6P 25288-76-0P, 3-Dibenzothiophenamine 56554-20-2P
68925-98-4P 97511-04-1P 425403-95-8P 425403-97-0P 425403-98-1P
425403-99-2P 425404-02-0P 425404-04-2P 446023-40-1P 446023-41-2P
446023-42-3P 446023-44-5P 446023-49-0P 446023-50-3P 446023-51-4P
446023-52-5P 446023-53-6P 446023-54-7P 446023-55-8P
446023-56-9P 446023-57-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(prepn. of compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

IT 425403-90-3P 446023-58-1P
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)

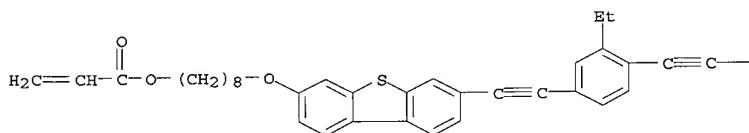
RN 425403-90-3 CAPLUS

CN Dibenzothiophene, 3,3'-[(2-ethyl-1,4-phenylene)di-2,1-ethynediyl]bis-(9CI) (CA INDEX NAME)

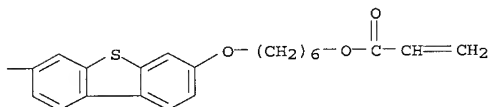


RN 446023-58-1 CAPLUS
 CN 2-Propenoic acid, 8-[[7-[[3-ethyl-4-[[7-[[6-[(1-oxo-2-propenyl)oxy]hexyl]oxy]-3-dibenzothiophenyl]ethynyl]phenyl]ethynyl]-3-dibenzothiophenyl]oxy]octyl ester (9CI) (CA INDEX NAME)

PAGE 1-A

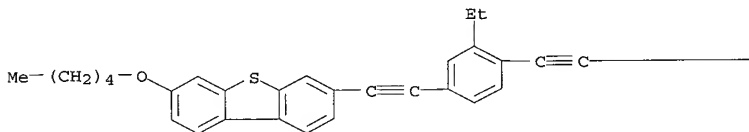


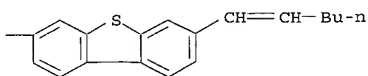
PAGE 1-B



IT 446023-46-7P
 RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (prepn. of compd. having phenylacetylene structure and dibenzothiophene compd. for liq. crystal display)
 RN 446023-46-7 CAPLUS
 CN Dibenzothiophene, 3-[[3-ethyl-4-[[7-(1-hexenyl)-3-dibenzothiophenyl]ethynyl]phenyl]ethynyl]-7-(pentyloxy) - (9CI) (CA INDEX NAME)

PAGE 1-A



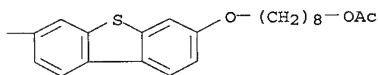
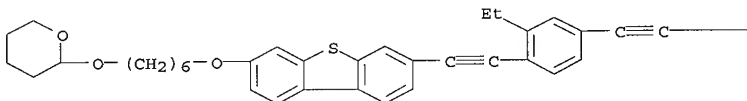


IT 446023-56-9P 446023-57-0P

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(prepn. of compd. having phenylacetylene structure and dibenzothiophene
compd. for liq. crystal display)

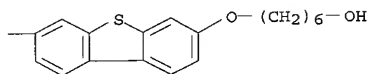
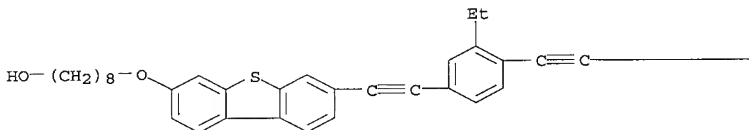
RN 446023-56-9 CAPLUS

CN 1-Octanol, 8-[[7-[[3-ethyl-4-[[7-[[6-[(tetrahydro-2H-pyran-2-yl)oxy]hexyl]oxy]-3-dibenzothiophenyl]ethynyl]phenyl]ethynyl]-3-dibenzothiophenyl]oxy]-, acetate (9CI) (CA INDEX NAME)



RN 446023-57-0 CAPLUS

CN 1-Octanol, 8-[[7-[[3-ethyl-4-[[7-[(6-hydroxyhexyl)oxy]-3-dibenzothiophenyl]ethynyl]phenyl]ethynyl]-3-dibenzothiophenyl]oxy]- (9CI) (CA INDEX NAME)



=> d his

(FILE 'HOME' ENTERED AT 19:12:07 ON 17 NOV 2003)

FILE 'REGISTRY' ENTERED AT 19:12:19 ON 17 NOV 2003

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 6 S L1 FUL

FILE 'CAPLUS' ENTERED AT 19:12:56 ON 17 NOV 2003